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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/208,105	11/25/1998	KAZUHISA SAKAMOTO	10233.81USW1	7685

7590 12/16/2004
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EXAMINER

NADAV, ORI

ART UNIT PAPER NUMBER

2811

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 09/208,105	Applicant(s) SAKAMOTO, KAZUHISA	
	Examiner ori nadav	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/15/04, 10/18/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

Figure 2 was received on 10/18/2004. These drawings are approved by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto (5,808,352).

Sakamoto teaches in figure 1 and related text a semiconductor device comprising a substrate 10, 11 having regions (region 21 and regions on the left and right to region 21) irradiated with radiating rays, crystal defects 21 within the regions irradiated, impurity regions 12, 13 in the substrate, and a light metal wiring layer 18, 19 comprising aluminum located over the substrate except at openings above the regions irradiated and being connected to each of the impurity regions, wherein radiating rays passing to the regions irradiated through the openings and generating crystal defects under the openings so that a smaller

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amount of radiating rays are irradiated elsewhere in the substrate compared with the regions under the openings.

Sakamoto does not state that the metal wiring layer is located over the entire substrate. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the metal wiring layer over the entire substrate, in Sakamoto's device in order to simplify the processing steps of making the device.

Regarding claim 10, Sakamoto teaches substantially the entire claimed structure, as applied to claim 9 above, except a metal wiring layer having a thickness so as to restrict penetration of rays into the region irradiated. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a metal wiring layer having a thickness so as to restrict penetration of rays into the region irradiated in Sakamoto's device in order to restrict penetration of rays into the region irradiated

Regarding claims 11 and 12, Sakamoto teaches in figures 1 an insulation layer being formed above the regions irradiated, the openings being on the insulating layer, and the metal wiring 18, 19 covers part of the insulating layer.

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2. Claims 13-14, insofar as in compliance with 35 U.S.C. 112, is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto in view of Takahashi (5,981,981)

Sakamoto teaches substantially the entire claimed structure, as applied to claim 9 above, except using the invention in an IGBT and a MOSFET semiconductor device, wherein the impurity region is a source region. Takahashi teaches in figure 30 an IGBT and a MOSFET semiconductor device, wherein the impurity region is a source region. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Sakamoto's invention in an IGBT and a MOSFET semiconductor device, wherein the impurity region is a source region in order to use the invention in an application which requires an IGBT and a MOSFET semiconductor device. The claimed limitation of a radiated region being a positive-negative junction where a parasitic diode is generated is inherent in prior art's device.

Response to Arguments

Applicant argues that claim 9 recites a single metal wiring layer located over the "entire" substrate except at openings above the regions irradiated, and the electrodes 18, 19 of Sakamoto are a pair of electrodes which could not form an opening as claimed and still function as different electrodes.

Claim 9 recites a metal wiring layer located over the "entire" substrate except at openings above the regions irradiated. The metal wiring layer 18, 19 of

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Sakamoto is located over the substrate except at openings above the regions irradiated, wherein smaller and larger amounts of crystal defects are located under the openings.

Although figure 1 of the present invention depicts larger amounts of crystal defects under all the openings, the broad recitation of the claim does not require larger amounts of crystal defects to be located only under all the openings.

Therefore, Sakamoto teaches the claimed structure, as recited in claim 9.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(571) 272-1660**. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**



O.N.
December 11, 2004

ORI NADAV
PRIMARY EXAMINER
TECHNOLOGY CENTER 2800